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DATAMATION®

APRIL 15, 1988
A CAHNERS PUBLICATION

RISK!

A new, potentially dangerous element has been introduced into global markets and businesses. The very same information systems that have enabled both to flourish in the 1980s :ause them to perish in s. In a world of highly distributed ver, complex networks, and database systems, s become the third factor in the IS equation. ganizations must go beyond measuring whether efits of new IS investments justify their costs. ust determine just how vulnerable today's ogy and tomorrow's advances ke them. (Turn to page 58)

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Plus:

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- **How To Get Your LAN Installed**
- **Using IS in the Hunt for Oil**
- **The Feds' Priority IS Projects**

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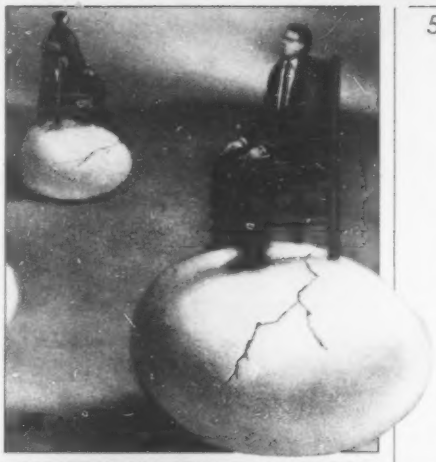

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APRIL 15, 1988
VOLUME 34
NUMBER 8
THIS ISSUE, 185,243 COPIES

1988 JESSE H. NEAL AWARD

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Editorial

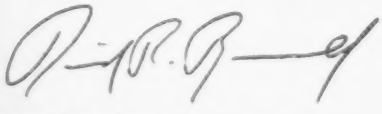
Unix is Old News

It seems that we see another announcement about Unix almost every day: product introductions by IBM; strategic alliances by Unisys, Sun, and AT&T; worries among groups of other companies about openness; huddles within standards committees—so much activity it would seem that Unix has taken a commanding role on the world's computing stage.

The scope of that role may be debatable, particularly in the still COBOL-dominated world of commercial information processing; what isn't debatable is the symbol that Unix has become. It is a symbol of freedom, for both users and vendors, a symbol of standardization, of openness, of liberation from machine dependency. It doesn't matter that there are many flavors of Unix, that its critics often point to the elusiveness of "one" Unix. Unix is part of a movement that we call the democratization of computing. It has its roots as much in technology as it does in the notion of freedom itself. In this sense, the announcements all add up to a positive development for users, irrespective of Unix itself.

But, in a way, Unix has become old news for information systems users. As we fast leave the colonial world of machine dependency, we may just as quickly leave the world of operating system dependency. As a consequence, the spotlight of attention has shifted from the operating system level to other important areas. Software development and portability, architectures, interfaces, communications, data independence—not to mention service and support—are just some of the current crop of leading-edge concerns. Interestingly, in the case of Unix, its history has foreshadowed current events; what enabled Unix to flourish was the development of a high-level language—Ken Thompson's work in developing the B language and then Dennis Ritchie's efforts to develop C, in which Unix was later rewritten. As the industry focuses more intently on these new concerns, the promise, overall, is one of a more efficient and productive use of computers.

But gains won't come without cost, and one dependency may give way to another. We expect to see and hear as much debate over interfaces and architectures—as well as standards—in the future as we do over Unix and proprietary operating systems today. When we see more announcements about successful business solutions and less about standards conformance, we'll know we're on the road to fulfilling computing's promise.



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DATAMATION (ISSN 0011-6963) Magazine is issued twice monthly on the 1st and 15th of every month by The Cahners Publishing Company, A Division of Reed Publishing USA, 275 Washington St., Newton, MA 02158-1630. William M. Platt, Chief Executive Officer; Terrence M. McDermott, President; Frank J. Sibley, Group Vice President; Jerry D. Neth, Vice President/Publishing Operations; J.J. Walsh, Financial Vice President/Magazine Division; Thomas J. Dellamaria, Vice President/Production and Manufacturing. Editorial and advertising offices, 249 W. 17th St., New York, NY 10011. Published at Woodstock, IL. Annual subscription rates: U.S. and possessions: $60; Canada: $85; Japan, Australia, New Zealand: $155 air freight; Europe: $135 air freight, $250 air mail. All other nations: $135 surface, $250 air mail. Reduced rate for U.S. public and school libraries: $40. Single copy: $5 in U.S. Sole agent for subscriptions in Japan is Maruzen Co. Ltd., 3-10 Nihonbashi, 2-Chome, Chuo-ku, Tokyo 103. J. sole agent for all other foreign subscriptions is J.B. Tratsart Ltd., 154 A Greenford Rd., Harrow, Middlesex HA13QT, England, (01) 422-8295 or 422-2456. No subscription agency is authorized by us to solicit or take orders for subscriptions. Circulation records are maintained at 44 Cook Street, Denver, CO 80206. Phone (303) 388-4511. Second-class postage paid at Denver, CO 80206 and at additional mailing office. DATAMATION copyright 1988 by Reed Publishing USA; Saul Goldweitz, Chairman; Ronald G. Segel, President and Chief Executive Officer; Robert L. Krakoff, Executive Vice President. All rights reserved. DATAMATION is a registered trademark of Cahners Publishing Co. Reprints of articles are available; contact Frank Pruzina (312) 635-8800. Microfilm copies of DATAMATION may be obtained from University Microfilms, A Xerox Company, 300 N. Zeeb Rd., Ann Arbor, MI 48106. Printed by Graflek Press Inc. **All inquiries and requests for change of address should be accompanied by mailing label from latest issue of magazine.** Allow two months for change to be made. POSTMASTER: send address changes to DATAMATION, 44 Cook St., Denver, CO 80206.

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Letters

Good News

"What's In, What's Out" (Jan. 15, p. 94) seems to equate Japanese government policies with Japanese corporate policies. Even though there are common points, they are not equal.

It was an unfortunate error for former Prime Minister Nakasone to comment on the intellectual levels of United States' minorities, but I do not believe that his comment has represented, nor will it ever represent Japanese corporate belief. At Hitachi Computer Consultant Co., I have never encountered discriminatory remarks against minority races, and, similarly in other Japanese companies, I firmly believe that such remarks have never been a factor in making corporate policy or in employment issues.

Additionally, I do not believe that Japanese management has ever considered American workers to be inferior to Japanese workers. Because of social differences between the two countries, Japanese management required some time to understand and to adjust to the American work ethic. Furthermore, I do not think that plans to build manufacturing plants overseas came from a "sudden" urge but resulted from long research into the United States.

Finally, I would like to change the statement concerning "office ladies" to read "female professionals are in."

HITOSHI OZAWA
System Engineer
Hitachi Computer Consultant Co. Ltd.
Tokyo

All New, All Consistent

Please allow me to correct a misconception in your otherwise accurate article on trends in micro DBMSs ("The Age of Friendly DBMSs Draws Closer for Micro Users," Jan. 15, p. 24).

In introducing PC Nomad as a complete 4GL DBMS complement to our powerful mainframe product, Nomad2, we did indeed create an entirely new product, designed to take advantage of the unique attributes of the pc environment. A friendly, productivity-enhancing user interface based on windowing technology was one of the key design components for PC Nomad. But we also took that technology further by contradicting the conventional wisdom that windowing cannot be implemented in a mainframe product. Concurrent with our release of PC Nomad in early 1987, we introduced Windows in mainframe Nomad2, making Nomad the first software product to offer a consistent windowing environment across all hardware and operating system environments.

ABBY PINARD
Senior Director, Marketing
MUST Software International
Norwalk, Conn.

Prices Slashed, Fill 'er Up

The article "Strategy Implementation: Passing the Systems Test" (Feb 15, p. 67) opens with "We certainly understood the new industry economics. Oil prices had plunged more than 100% in the past two years . . . ."

The oil companies would pay you to take their oil? That sounds like the kind of economics that I'd certainly like to understand, too, considering my heating bills this winter.

PAUL D. GRIEM JR.
Foxboro, Mass.

Guidance from GUIDE

We were interested to see the Directory of User Groups (Dec. 15., p. 52). While we believe it to be virtually impossible to cover every user group in such a directory, there were some significant omissions, no doubt due, as you said, to the relevant vendors failing to supply information.

One such omission was GUIDE, the largest IBM User Group outside the USA. It has almost 2,200 member installations in 28 countries spread across Europe, the Middle East, Africa, and Australia.

Please note that GUIDE and GUIDE International, which was covered in your directory, are totally separate organizations, with similar objectives but different geographical coverage.

PIERRE DELESALLE
GUIDE President
KURT R. THOMAS
GUIDE Headquarters
New York

Follow That Shaft!

We would like to share this poem with DATAMATION readers. It is based on a well known poem. Our industry can probably relate to this situation.

I shot an error in the air,
It fell to earth, I know not where.
Later on, so I am told,
Some twenty users were on hold.

RICHARD KING
SUZAN KATALTEPE
Neural Systems Inc.
San Antonio

Government IS Projects: Getting the Presidential Nod

The role of information systems in government agencies has moved up a significant notch in importance under the 15-project Presidential Priority Systems part of the five-year plan for meeting the processing and communications needs of the federal government. Two key projects are the Interior Department's automated land and minerals record system and the USDA's farm loan system.

BY WILLIE SCHATZ

In the often Darwinian world of the federal budget, only the strong survive. This law of nature, as applied to information technology in Washington, D.C., has engendered its miscarriages of justice, both large and small. But a recent plan has helped assure that information technology will have not only a greater chance of survival, but may even flourish.

A Five-year Plan for Meeting the Automatic Data Processing and Telecommunications Needs of the Federal Government is a joint creation of the Office of Management and Budget (OMB), the General Services Administration (GSA), and the Department of Commerce (DOC). Within it is what's known as Presidential Priority Systems (PPS) for Fiscal Year (FY) 1988. There are 15 of them at present, and, according to the plan, "the systems were selected for ongoing high-level management review because of their size, complexity, importance, or because they represented precedent-setting applications of technology."

The Administration also promises that it is "committed to achieving excellence in these systems, bringing them up to private industry standards by the end of 1988."

Of course, there are some projects—this is the govern-

Illustration by Tom Lulevitch

ment, remember—for which being on the PPS may not make much difference. Take GSA's FTS 2000, the code name for modernizing the government's Paleozoic telephone system, or the Patent and Trademark Office's (PTO) Automation Master Plan. The latest FTS 2000 schedule—already a year late—had bids due March 31, with the award to be made Sept. 30. But, given FTS 2000's exceptionally turbulent history, no one's putting serious money down on GSA making the deadline. The PTO's plan to computerize files that go back to the first patent—awarded in 1791—has been almost as much of a travesty.

AGRICULTURE'S HANEY: The PPS helped during the final '88 budget reductions.

And Now For Some Good News . . .

But there is more good news than bad among the elite 15. Two of the brighter stars are the Department of Interior and the Department of Agriculture (USDA), which three years ago used that most basic of information systems—hand, pen, and paper. Both agencies are automating their ancient record-keeping systems. Interior is computerizing its land and mineral records system; USDA is automating its farm loan system.

"I think the PPS increases awareness and the understanding of what you're trying to accomplish," says Glenn Haney, director of USDA's Office of Information Resources Management (OIRM). "It's created attention in Congress that might not otherwise have been there. And it certainly didn't hurt us during the final FY '88 budget reductions."

Says Brian Bernard, project manager for Interior's Automated Land and Mineral Records System (ALMRS), "If your information is in order, being a PPS gives you more ability to sustain your project in difficult fiscal times.

"The PPS doesn't decrease congressional scrutiny. It actually increases it, because more documentation is required. We weren't affected by the FY '88 budget reductions, but it wasn't without a series of skirmishes," Bernard recalls. "We had to convince 10,000 people 10 million times that this project would be a significant contribution to the country. It's something you don't want to do twice."

Not in the same day at least. But such struggles have been going on for what seems like 10,000 years. And in these tight-fisted times, getting the money to run your favorite information systems project won't get easier.

IS will be better off than most other government activities, though. IS has come a long way from the days in 1984 when all that agencies had to do was to submit to GSA and OMB copies of their IS plans. Now, agencies are required to submit annual, detailed, comprehensive plans about where they're going and how they're going to get there.

The star status of IS shows in the area where it counts most. Federal obligations for IS have risen 50% in the last five years, while the overall budget about which everyone is screaming has gone up only 16% (see "Government Gigabucks: Federal IS Budget in Current and 1982 Dollars").

"Despite this progress, however, the federal government needs to do more to regain the leadership role it once enjoyed in information technology," the five-year plan states. "Rapidly changing information technology has brought matters to a new watershed. No longer can information technology be seen as simply providing more efficient tools for performing business-as-usual. Technological advances now provide opportunities for changing the way the government does business."

For sure. But will the government put its money where its mouth is?

"I think IS budgets will continue to rise in FY '88 and FY '89, but more slowly than in the past," says Tim Matlack, vice president of American Information Systems, an Arlington, Va.-based consultancy that has performed numerous IS studies for various government agencies. "The budget cutting for FY '88 and FY '89 will have a positive impact because there will be greater scrutiny of everything. It's going to force people to be more hard-nosed about their priorities, although those priorities may not change."

How Do You Do More With Less?

"It's going to be a real challenge for the information resources manager," agrees Howard Ady, director of resource management for the Defense Technological Security Administration and former president of the Federation of Government Information Processing Specialists, Washington, D.C. "This could be their finest hour. How are they going to do more with less? It takes much better management in times like this than when there's plenty of money to throw at the problem."

Only in the Department of Defense is too much never enough. That's rarely the story with most government agencies, including Interior and USDA. Nevertheless, each agency's main IS project has so far managed to withstand the appropriations process's terrible swift sword.

ALMRS is Interior's attempt to improve its management of 343 million surface acres and 407 million acres of mineral rights for which the Bureau of Land Management is responsible. That's about one third of the country, making

Photograph by Katherine Lambert

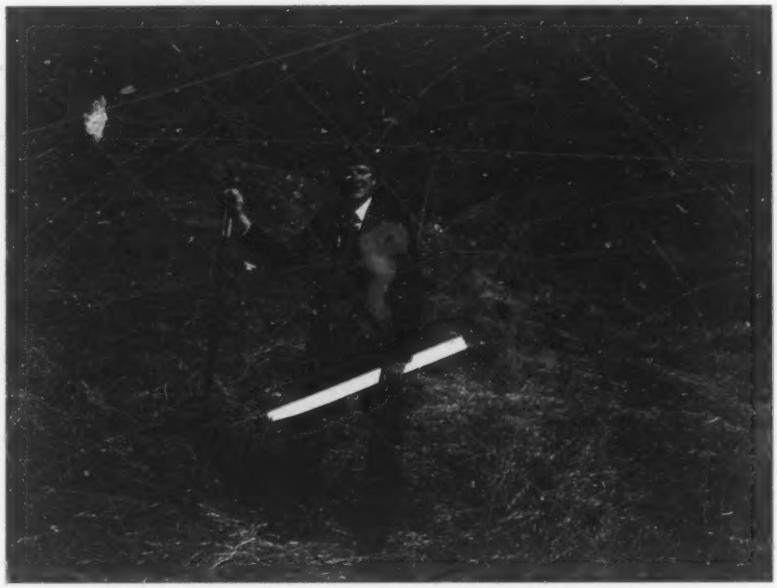
the government the largest landlord—and landowner—around. And you thought managing real estate in New York City was tough.

The Three Parts of the Farm System

USDA's Farm Agency Service System (FASS to its friends) supports the management of over 2 million loans. Over 1 million farmers are affected. FASS is designed to improve the level of services to farmers, e.g., letting them know next year's crop forecasts as quickly as possible when they're trying to obtain a loan from the Farmers Home Administration (FmHA).

Like Gaul, FASS comes in three parts. There's FmHA's Automated Field Management System (AFMS), the Agricultural Stabilization and Conservation Service's State and County Office Automation Project, and the Soil Conservation Service's (SCS) Field Office Commission Automation System (FOCAS). "The FmHA mission is to be the lender of last resort for rural people and small farmers who can't get a loan at the bank," explains USDA's Haney. "So when they come to a local FmHA office, we want to help them develop a plan that will help them pay off the loan."

It's not as if the FmHA were doing a bad job helping its clients. The agency simply knew it could do better. So when a 1983 Price Waterhouse study showed that an office automation project would revolutionize efficiency and effectiveness in the field, FmHA officials began checking things out. They decided to proceed with the procurement and installation of multifunction workstations for all FmHA offices.



INTERIOR'S BERNARD: Being a PPS can sustain projects in difficult times.

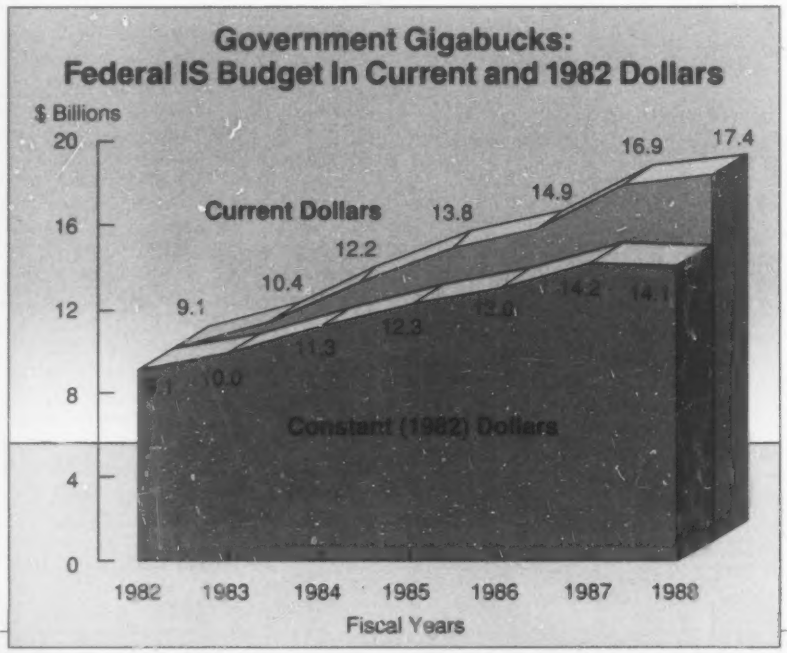
"Naturally, we kept records of our clients," Haney says. "Before this project, we kept the records manually on index cards. There was no automation in place. We had absolutely nothing.

"So, we had to find a way to do our record-keeping via computer. We wanted to automate the repetitive tasks. If we could do that, we'd have more time to service the loan and increase our capability to provide assistance to the end user. He or she wouldn't have to be sitting there while our field personnel were searching their card file for the information."

We're not talking a 24-hour hotline yet, but they're working on it. The last of FmHA's 3,000 workstations linking its 2,250 offices was installed in December. The index cards now are history, replaced by AT&T's 3B2 minis and PC 6300 micro workstations.

All this for a mere $225 million, awarded in September 1985 to Electronic Data Systems (EDS), Dallas, and spread over 10 years. The contract covers general purpose software, training, and administrative support services. It's the first government contract that allows agencywide computer standardization.

Previous contracts had permitted the subagencies to decide their own software and hardware fates. The EDS deal allows each subagency the option not to buy from the contract, but, theoretically, each had to put up the money within three years or forever hold its peace. FmHA bought most of its hardware within two years. SCS, caught in a funding squeeze that's more a reflection of what Congress determines the agency should receive per se rather than an indication of FOCAS's merits, has had to extend by a year its buying cycle. So, although the



Photograph by Carl Iwasaki

hardware phase of AFMS has ended, FOCAS's hasn't even begun. The acquisition process won't be finished until October.

Each State Office Had a Coordinator

The first days were the hardest days for FmHA. It had to automate its offices while simultaneously convincing its staffers that the computer wasn't going to eat them for lunch. Each state office designated a coordinator who had the last word on installation, training coordination, and current information systems operations within the state.

An installation and training team was set up in each state to give the coordinator a break, with the national office providing agencywide training and coordination. We're talking turnkey training here, folks, ranging from software development and hardware and software troubleshooting to distribution of new or revised software and documentation and establishing an agencywide help desk. Just so everyone knows where the buck stops, USDA's national office will develop all applications and control their release. All communications will go into the National Finance Center in Kansas City, one of USDA's three national databanks.

In the end, according to the five-year plan, FmHA will be able to save about $70 million annually through improved loan portfolio management and improving farming enterprises "until such time as the borrowers qualify for private sector financial resources." FOCAS is expected to increase by 15% soil and water conservation technical assistance when fully implemented, since farmers and ranchers will have 15% more time to spend with Soil Conservation personnel.

A "Well-Greased Contract Machine"

"This has been a success in their eyes and ours," says Bill Dvoranchik, EDS's vice president, government services division, account operations. "Once there is a need identified and this becomes the solution, it becomes simple to move forward. You've got a well-greased contract machine. This has absolutely been solved in a timely, responsible fashion."

USDA's Haney admits, "Any project such as this is going to have rough spots. But our experience has been more plus than minus. We're past the point where all we buy is hardware. We want a turnkey that you can install and run in three hours. And the best way to do that is with a systems integrator like EDS. It'd be nice to do it ourselves, but we'll never have the luxury of having all the in-house expertise we'd need to do that.

"We would do it again, which I guess is the truest test of whether the whole thing was worth it. And the taxpayers benefited, too," he continues. "FmHA's automation activity will enable it to deliver its services much more effectively and efficiently. I'd give this a seven or eight on the use of taxpayers' money."

They haven't posted the final score on Interior's ALMRS yet, and they won't for a while. The Request for Proposal won't hit the street until May 1989, and the winner won't be announced until a year later. But after being behind for 130 years, what's another year or two?

According to Interior's Bureau of Land Management (BLM), here's the way the whole thing started. Silly, but it's true. The Land Ordinance of 1785 established the rectangular survey, which had to be completed and the result recorded in the Public Land Ledgers before land could be granted. The law also begat the first Land Office, established in 1795, and succeeded in 1812 by the General Land Office (GLO).

By the 1840s, GLO commissioners

Where the Government's IS Money Is Going

Do you want to know how your money's doing as the government attempts to bring its information systems up to private industry standards? Here are the latest standings, according to the fiscal year 1988 *Five-Year Plan for Meeting the Automatic Data Processing and Telecommunications Needs of the Federal Government*.

Of the plan's 171 significant initiatives, 97 are continuations of initiatives originally described in the 1986 five-year plan. Of those 97, 52 are considered on schedule, 31 are late, and 13 aren't mentioned.

In addition to USDA's Farm Agency Service System and the Department of Interior's Automated Land and Mineral Records System, the following projects have been chosen to be Presidential Priority Systems for FY '88:

- Patent and Trademark Office's Automation Master Plan;
- General Services Administration's FTS 2000;
- Social Security Administration's Systems Modernization Plan;
- Federal Aviation Administration's National Airspace System Advanced Automation Program;
- Internal Revenue Service Tax System Redesign;
- Securities and Exchange Commission's EDGAR System;
- Department of Commerce's Advanced Weather Interactive Processing System (AWIPS);
- Department of Labor's ERISA Electronic Data Base System;
- Department of Labor's FECA Data System;
- Department of State's Foreign Affairs Information System (FAIS);
- Department of Energy's Licensing Support System;
- Department of Justice's Immigration and Naturalization Service's ADP Program; and
- Department of Defense's Air Force Personnel Concepts III System.

That's not all, folks. Twelve systems have had the honor of being picked as Future Priority Systems. They've got until 1990 to get their act together. They are:

- Department of the Interior's Geological Survey National Mapping Mark II;
- Department of Agriculture's Food and Nutrition Service Computer Hardware Acquisition and Modernization Program (CHAMP);
- Department of Justice's Uniform Office Automation and Case Management System;
- Department of Justice's Telecommunications Network;
- NASA's Procurement Management Technology Program;
- Small Business Administration's Data Processing Modernization;
- Department of Health and Human Services' Integrated Management of Personnel Administration Through Computer Technology (IMPACT);
- General Services Administration's Washington Interagency Telecommunications System (WITS);
- Department of State's Consular Lookout and Support System (CLASS);
- Veteran Administration's Department of Veterans Benefits Modernization Program;
- Defense Logistics Agency's Logistics Systems Modernization Program; and
- Internal Revenue Service's Integrated Telecommunications Network.

were already on record about a shortage of personnel to handle land grants. Commissioner Hendricks told Congress in 1856 that the GLO was about four years behind.

Automating Oil and Gas Leases

As the country moved west, things got worse. GLO commissioner Spry reported in 1926 an error in inventory that amounted to 11 million acres of public lands the government didn't know it had.

BLM eventually caught up, and in 1955 inaugurated a record system that used mechanical drawing techniques for maps and microform technology, but which was still manually maintained. In 1976, after finally seeing the handwriting on the wall, BLM began its Strategic Plan, a comprehensive automation outline. The first tangible result came in 1978, when BLM automated its mining claims records.

When the land recordation system fell apart two years later, BLM decided it might not be a bad idea to put that on a fast track.

"We discovered we had a significant problem in oil and gas leasing in the early '80s," Interior's Brian Bernard says. "The system couldn't produce leases fast enough to respond to the oil crisis. If the information doesn't move fast enough, we can't react to a drop in oil prices.

"In the leasing situation," he continues, "somebody either wants to drill on land they own or they want to lease land from us and drill on it. In a normal year, we have 20,000 of those cases. In 1980 and 1981, we had 80,000. We were a year behind. The manual system was breaking down. It was clear to us that if we didn't automate the process, we wouldn't be able to manage very well."

BLM Must Juggle Competing Land Claims

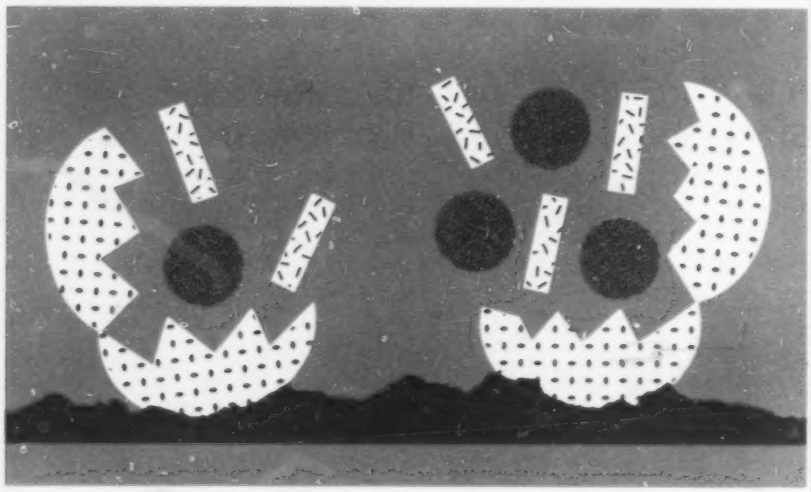
The oil crisis wasn't the only factor pressing on the land recordation system. According to BLM, the public land laws require it to view the land "as a resource to be managed under the principles of multiple use and sustained yield for the benefit of all Americans."

That means BLM has to balance about 10 to 15 competing claims for the land. That includes the environmental impact statement, the almost-always conflicting arguments of the claimants, and the often balky administrative process. You think all a lumber company has to do to cut timber in Oregon is to head to the forest with its chain saws, right? No shot.

There has to be an environmental impact statement. The company has to prove it has rightfully obtained the lease or that it owns the tract. While all these are being sorted out, the economy of the state and perhaps the country is being affected.

"If we don't get the timber sale done, it definitely affects the economy," Bernard contends. "All of a sudden we're noncompetitive on the world market because we can't move the resources fast enough.

"Now it takes us 18 months to grant a utility right-of-way. With a modernized system we could cut down the time by 80%. We might go from reactive to proactive. And we'll have built a base infor-



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mation set as a foundation for us and every other federal agency that surface manages federal land."

This is going to be one serious construction job. Pick a piece, any piece, of land in the U.S. Then put a rectangular grid on top of it. That grid is the GLO's Public Land Survey System. It comes in six-mile-square townships and the study also assumes, rather optimistically, "that the most cost-effective alternative available in the competitive market at the time of procurement will dictate the final configuration."

The systems architecture in the study estimates a 12-year life cycle cost of $241 million, with the bulk going for hardware ($70.3 million) and operations and maintenance ($95.2 million). Total benefits for that 12-year span are estimated at $870 million, with the three largest savings coming from improvements in processing applications ($200 million), reduced query time ($235 million), and elimination of duplicative data collection ($223 million).

Actual Costs May Be Less Than Expected

But BLM, perhaps anticipating the inevitable further fiscal frugality, says future budget requests aren't expected to total $241 million. It has already told Congress that the total net cost may be as much as 40% to 50% less and that the net investment required beyond FY '87 to implement the project "will fall somewhere in the range" of $90 million to $150 million. "More importantly, there is good reason to believe that at the time of procurement, actual costs will be significantly less than the costs assumed in the feasibility study."

Whatever the cost and whatever the architecture, about 7,000 of BLM's 9,000 employees will need access to the 4,000 terminals that the eventual contract winner will deliver.

"We really need a system to expeditiously provide us with information about what effect a particular action will have on the public revenue derived from our management of the public lands," Bernard says. "The faster we're able to take action, the faster the benefit returns to the public.

"Don't forget that you're the owners and we're the managers. We know we can do it better. Nobody liked the oil crisis, but the one good thing about it was that gave us a hiatus to get started on ALMRS so we don't manage so badly again. We're going to get the oil out of the ground much faster the next time the Arabs shut it off." ■